

CLAIMS

1. A method for growing carbon nanotubes (5) on a substrate (1) by a hot-filament assisted chemical vapor deposition method, comprising the step of previously depositing on the substrate a titanium (12) and cobalt (13) bilayer such that
5 the thickness of the titanium layer ranges between 0.5 and 5 nm;
the thickness of the cobalt layer ranges between 0.25 and 10 nm; and
the thickness of the cobalt layer ranges between half
10 and twice the thickness of the titanium layer.
2. The method of claim 1, wherein the titanium layer is formed on the cobalt layer.
3. The method of claim 1, characterized in that the substrate is made of silicon coated with oxide.
- 15 4. The method of claim 1, characterized in that the substrate comprises at least one tip (21), whereby a nanotube (25) grows by moving away from the substrate from the top of the tip and other nanotubes grow by spreading against the substrate.
5. The method of claim 1, comprising the step of
20 selecting the sum of the titanium and cobalt thicknesses according to the diameter and to the structure wanted for the nanotubes.
6. The method of claim 1, characterized in that the bilayer is of cobalt/titanium type and is formed on a thick
25 titanium layer.
7. The method of claim 1, characterized in that the bilayer is of titanium/cobalt type and is coated with a titanium layer of a thickness greater than 20 nm, whereby the nanotubes only grow from the lateral surface of the bilayer.
- 30 8. A substrate supporting carbon nanotubes (5), characterized in that it is coated with a titanium (12) and cobalt (13) bilayer such that:
the thickness of the titanium layer ranges between 0.5 and 5 nm;

the thickness of the cobalt layer ranges between 0.25 and 10 nm; and

the thickness of the cobalt layer ranges between half and twice the thickness of the titanium layer.

- 5 9. The substrate of claim 8, characterized in that it comprises microtips (21), whereby a single carbon nanotube or a single bundle of nanotubes grows from the tip of each microtip and the growth of other nanotubes is performed by spreading on the substrate.